FACTORS ASSOCIATED WITH LATE ANTENATAL CARE ATTENDANCE IN SELECTED RURAL AND URBAN COMMUNITIES OF THE COPPERBELT PROVINCE, ZAMBIA

By
ISAAC BANDA

A dissertation submitted to the University of Zambia in partial fulfillment of the requirement of the degree for Master of Public Health

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DECLARATION

I hereby declare that all the work in this dissertation is my own and has never been submitted for another degree in this or any other university or institution of higher learning.

Dr Isaac Banda

Signature **Date**

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This dissertation is submitted with the approval of the following supervisors

Dr Charles Michelo -MBChB, PhD

Department of Community Medicine

University of Zambia

School of Medicine

Lusaka

Signature **Date**

---------- ----------

Mrs Alice N. Hazemba- BSc Nursing, MPH

Department of Community Medicine

University of Zambia

School of Medicine

Lusaka

Signature **Date**

---------- ----------

Certificate of Approval

This dissertation by Isaac Banda is approved in partial fulfillment of the requirements for the award of a Master of Public Health (MPH) by the University of Zambia

Examiner: 1. _____ Date: _____

Examiner: 2. _____ Date: _____

Examiner: 3. _____ Date: _____

Examiner: 4. _____ Date: _____

Head of Department
Signature: _____ Date: _____
Department of Community Medicine, University of Zambia

Abstract

Background: Despite antenatal care services being provided free of charge or sometimes at a minimal cost in Zambia, only 19% of women attend antenatal care by their fourth month of pregnancy, as recommended by World Health Organization (WHO). An estimated 21% of pregnant women in urban and 18% in rural districts make their first ANC visit by 4^{th} months of pregnancy. A number of factors have been found to contribute to late initiation of Antenatal care among pregnant women and these may vary between rural and urban areas. Therefore, a study aimed at examining factors associated with late ANC attendance amongst pregnant women in selected communities of the Copperbelt Province was conducted.

Methodology: A cross- sectional study using a semi-structured questionnaire was conducted in selected health facilities of Mpongwe and Ndola districts. A total number of 613 women attending antenatal clinic, distributed evenly between Mpongwe rural district (51% (307/613) and Ndola urban district (49% (306/613) were included in the study. Data from the completed questionnaires was entered using Epi Info™ 3.5.1 and finally analyzed with SPSS version 16.0.

Results: The prevalence of late ANC attendance was 72.0 % (n=221) and 68.6% (n=210) in rural and urban districts respectively. However, the difference between two districts was not statistically significant [OR 0.851 (95% CI=0.6, 1.2), p=0.363]. In the rural district, nulliparous women were 59% (AOR 0.411, 95% CI 0.238, 0.758) less likely to initiate ANC late compared to multiparous women, while the proportion the urban was 48% (AOR 0.518, 95% CI 0.316, 0.848). Inadequate knowledge about ANC resulted into 2.2 times high odds for late ANC attendance (AOR 2.205, 95% CI 1.021, and 4.759) than women who had adequate knowledge in urban district. Women who fell pregnant unintentionally had a higher odds of starting ANC late in both rural [4.2 times (AOR 4.258, 95% CI 1.631, 11.119)] and urban [3.1 times (AOR 3.103, 95% CI 1.261, 7.641)] respectively. The perception of no benefits derived from commencement of ANC early was associated with 4 times (AOR 3.983, 95% CI 1.365, 11.627) likelihood of late attendance in the urban district. Compared to lack of privacy at health institutions,

pregnant women in rural were 3.4 times (AOR 3.377, 95% CI 1.180, and 9.660) more likely to initiate ANC late because of long distance to health facilities. Compared to misconceptions on ANC, pregnant women in rural areas were 2.2 times (AOR 2.211 95% CI 1.049, 4.660) more likely to start ANC late because of community norm(less value attached to ANC); while in urban late ANC attendance was 2.9 times (AOR 2.899, 95% CI 1.372, 6.083) higher due to cultural beliefs than misconceptions.

Conclusion: Late antenatal care attendance remains high in both rural and urban districts indicating the need for intensified and more focused utilization of resources aimed at increasing sensitization of the importance of early attendance for high risk groups, such as women with unplanned pregnancies, inadequate knowledge about ANC, cultural beliefs and multiparous.

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ACRONYMS

AIDS –Acquired immune deficiency Syndrome.

ANC- Antenatal Care.

DHMT- District Health Management Team

FANC- Focused Antenatal Care

HIV – Human Immunodeficiency Virus.

HMIS- Health Management Information Systems

IPT – Intermittent Presumptive Therapy

MCH- Maternal and Child Health

PMTCT –Prevention of Mother to Child Transmission.

UNICEF- United Nations Children's Fund

WHO- World Health Organization

ZDHS- Zambia Demographic and Health Survey

Chapter 1

1.0 Introduction

1.1 Background to the study

Maternal and neonatal morbidity and mortality have continued to be a major problem in developing countries despite efforts to reverse the trend. Globally, more than 500,000 mothers die each year from pregnancy related conditions, and neonatal mortality accounts for almost 40% of the estimated 9.7 million children under-five deaths (UNICEF, 2009). Furthermore, ninety nine percent (99%), of maternal and newborn mortality occur in developing countries. The greatest risk of maternal deaths, which is now compounded by the HIV/AIDS pandemic, is faced by women in Sub-Saharan Africa (O'Callaghan, 1999). According to a survey conducted in Zambia, it was reported that maternal mortality ratio stood at 591 per 100 000 live births while neonatal mortality was estimated at 34 per 1000 live births (ZDHS, 2007).

Research has shown that most of the maternal and neonatal deaths are avoidable (Stevens-Simon, 2002). Antenatal care is one of the key strategies for reducing maternal and neonatal morbidity and mortality directly through detection and treatment of pregnancy related illness, or indirectly through detection of women at risk of complications of delivery and ensuring that they deliver in a suitably equipped facility (Anh, 2002). A number of studies have demonstrated the association between antenatal care attendance and reduction of premature birth, low birth weight, congenital malformations, congenital infections, neonatal tetanus, pre-eclampsia and anaemia (Orvos et al. 2001).

In 2001 the World Health Organization (WHO) issued guidance on a new model of antenatal care (ANC) called goal-oriented or focused antenatal care (FANC), for implementation in developing countries (Villar et al. 2001). In this new strategy of focused antenatal care, WHO recommends four antenatal care visits in low risk pregnancies and prescribes the evidence-based content for each visit (Villar et al. 2002) Antenatal care constitutes screening for health and socioeconomic conditions likely to increase the possibility of specific adverse pregnancy outcomes, providing therapeutic interventions

known to be effective; and educating pregnant women about planning for safe birth, emergencies during pregnancy and how to deal with them (WHO, 2009). Interventions that have proved to be of great benefit to the mother and the child include iron and folate supplementation in areas with high prevalence of anemia, serological screening for and treatment of syphilis, routine obstetric examination, intermittent presumptive therapy (IPT) for malaria, and tetanus immunization (van Eijk , 2006). Other interventions that can be linked to ANC include providing information on good nutrition, family planning, breastfeeding, and health benefits of delivery with the assistance of skilled health provider (WHO, 1999). Prevention of mother to child transmission (PMTCT) of HIV has recently been incorporated in the antenatal care service program. The above interventions will be of full benefit if women start attending antenatal early in pregnancy.

Globally, progress has been made in terms of increasing access and use of one antenatal visit, although the proportion of women who are obtaining the recommended minimum of four visits is too low (Carroli, 2001). In addition, the first consultation is often made late in pregnancy, whereas maximum benefit requires early initiation of antenatal care. Van Eijk et al. observed that there was a tendency towards late attendance for the first ANC visit in Kenya. The whole of Sub-Saharan Africa lags behind other developing regions (WHO, 2006). Various studies have reported factors associated with late entry to ANC, these include place of residence, ethnicity, age, education, employment status, parity, intention to get pregnant, use of contraceptive methods, economic status, health insurance, and travel time (Trinh, 2006; Adekanle, 2008).

Men play a vital role in determining the health needs of a woman. In developing countries, men are decision makers and in control of all the resources, they decide when and where woman should seek health care. It has been demonstrated that lack of male involvement in pregnancy and antenatal care and in prevention of mother-to child transmission (PMTCT) of HIV programmes have been identified as major bottlenecks to effective programme implementation (Horizons Programme Report, 2002).

1.2 Problem statement

In Zambia ANC services are provided free of charge in most government health institutions and at a minimal cost in private clinics. As a result, the Zambia Demographic and Health survey indicates that the vast majority (94%) of pregnant women receive some antenatal care (ANC) from a skilled provider, most commonly from a nurse/midwife (87%). However, only 19% of women attend antenatal care by their fourth month of pregnancy, as recommended by World Health Organization (ZDHS, 2007). Furthermore, in terms of urban and rural variation, 21% of pregnant women in urban and 18% in rural districts had their first ANC visit by 4th months of pregnancy.

Mpongwe one of the rural districts in Zambia, showed the same trend. Out of 6,448 first antenatal attendance in 2008, only 2,296 pregnant women attended antenatal by the 20th week of their pregnancy, representing 74% of late antenatal attendance (HMIS, 2008). The average number of ANC visits per pregnancy was 2.6 (HMIS, 2008). Similarly, the Ndola 2008 HMIS reported that only 30% of pregnant women attended ANC by 20th week of pregnancy. Out of 19,964 first ANC attendance, only 5,992 attended by 20th week of pregnancy making the proportion of late ANC attendance to be 70%.

Recently, the potential of the antenatal period as an entry point for HIV prevention and care, in particular for the prevention of HIV transmission from mother to child, has led to renewed interest in access to and use of ANC services (Campbell et al. 2006). Additionally, World Health Organization (WHO) recommends that all pregnant women in areas of stable malaria transmission should receive at least two doses of Intermittent Presumptive Therapy for malaria at the beginning of second trimester or after quickening (first noted movement of the foetus) during routinely scheduled antenatal clinic visits (Kiwuwa, 2008). Thus, late antenatal attendance makes it difficult to implement effectively the above and other routine ANC strategies that enhance maternal wellbeing and good perinatal outcomes. In this regard, the identification of factors associated with late ANC attendance is a major public health objective. It could help come up with strategies that could improve the quality ANC service provision and timing of first ANC attendance.

1.3 Study justification

Literature has generally indicated the importance and the benefits of ANC, therefore research needs to be done to understand the reasons for late antenatal attendance. This study takes a unique approach to understanding factors affecting antenatal attendance as it looks not only at individualized factors, but an ecological perspective. Hence, the study will focus on comprehending intrapersonal or individual factors, interpersonal factors, institutional or organizational factors, community factors, and public policy factors affecting antenatal attendance. It is hoped that information obtained from this study will add to the existing body of knowledge in the area of maternal and child health. The results of this study may also be of use to health policy makers and other stakeholders for developing healthy public policies as regards reproductive health. Consequently, the findings might help to enhance family and social support system for pregnant women in communities.

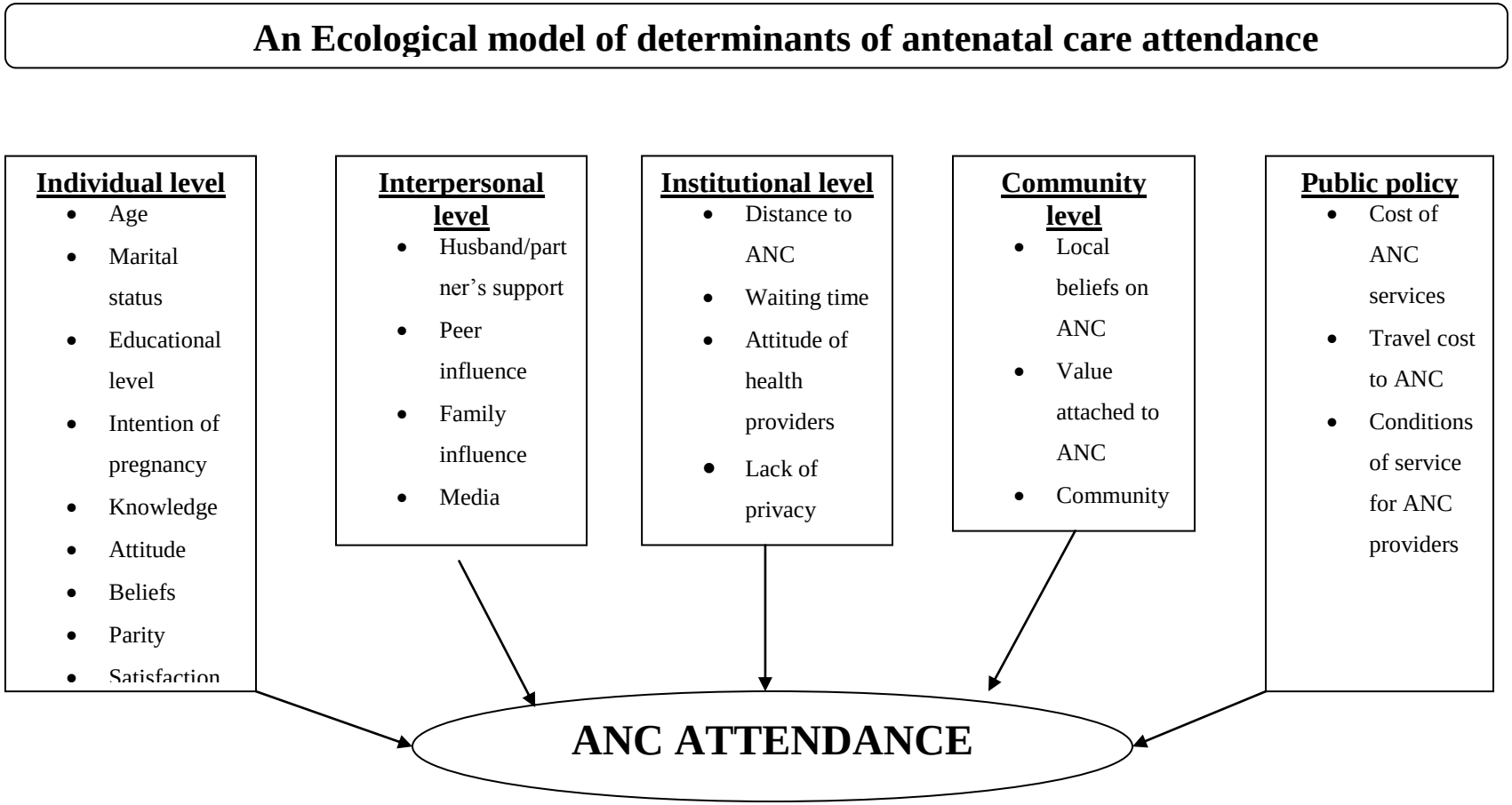
1.4 Theoretical framework

Health care in general is grounded in a biomedical paradigm that focuses on individual level determinants of health rather than in a socio-ecological paradigm that acknowledges the influence of the environment (Sword, 1999). However, this study was guided by the socio-ecological model because it emphasizes the interaction between, and interdependence of, factors within and across all levels of a health problem (Barbara et al, 2005). In addition, there are two key concepts of the ecological model that help to identify intervention points for promoting health. The first is that, behavior both affects, and is affected by, multiple levels of influence; second, individual behavior both shapes, and is shaped by, the social environment. In order to explain the concepts, McLeroy and others (1988) identified five levels of influence for health-related behaviors and conditions. These levels include; intrapersonal or individual factors, interpersonal factors, institutional or organizational factors, community factors, and public policy factors.

The socio-ecological model will help to explain why some women attend ANC early while others do not. As potential health care system users, pregnant women are located

within a socio-political environment that shapes their personal and situational characteristics and, ultimately, has a determining role in attending ANC (Sword, 1999).

Figure 1.



Adapted from Theory at a Glance (Barbara et al, 2005)

1.5 Research question

1.5.1 Does area of residence, urban or rural, have any effect on the timing of entry to antenatal care?

1.5.2 What intrapersonal, interpersonal, institutional, community and public policy factors are associated with late antenatal attendance amongst pregnant women in selected rural and urban communities of the Copperbelt province?

1.6 Definition of Key concepts

1.6.1 Antenatal Care (ANC): is an umbrella term used to describe health care rendered during pregnancy (McDonagh, 1996).

1.6.2 Focused Antenatal care (FANC): This is a new World Health Organization (WHO) model of antenatal care (ANC) sometimes called goal-oriented ANC for implementation in developing countries (Villar et al. 2001). The new model reduces the number of required antenatal visits to four, and provides focused services shown to improve maternal outcomes. FANC eliminates the traditional risk assessments and instead emphasizes helping women to maintain normal pregnancies by identifying existing health conditions, detecting emerging complications, promoting health, preparing for a healthy birth, and educating clients on postpartum care including nutrition, breastfeeding, and family planning.

1.6.3 Intermittent presumptive therapy (IPT): Intermittent therapy involves the administration of full, curative-treatment doses of an effective antimalarial drug at predefined intervals during pregnancy (WHO, 2004). In Zambia sulfadoxine/pyrimethamine (Fansidar) is used for IPT in pregnancy.

1.6.4 Maternal mortality ratio: The number of registered deaths among women, from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy, childbirth or within 42 days of termination of

pregnancy, irrespective of the duration or site of the pregnancy, for every 100 000 live births in a given year or period of time.

1.6.5 Neonatal mortality rate: T he number of registered deaths in the neonatal period per 1000 live births in a given year or period of time

1.6.6 Prevention of mother to child transmission of HIV (PMTCT): This refers to the prevention of transmission of HIV from an HIV-positive woman during pregnancy, delivery or breastfeeding to her child. The term is used because the immediate source of the infection is the mother, and does not imply blame on the mother.

Chapter 2:

2.0 Literature review

2.1 Introduction

The purpose of literature review in this study is to identify factors influencing antenatal attendance from the works done by other researchers. A review of literature will therefore provide a road map for the development and implementation of the research (Burns et al. 2005).

Despite the global efforts initiated to improve maternal health, more than half a million women worldwide die each year as a result of complications arising from pregnancy and child birth (Ronsmans et al. 2006). Almost all of these deaths occur in developing countries with sub-Saharan Africa accounting for almost 47% of the toll (WHO, 2004). The lifetime risk of maternal death in sub-Saharan Africa is 1 in 22 mothers compared to 1 in 210 in Northern Africa, 1 in 62 for Oceania, 1 in 120 for Asia, and 1 in 290 for Latin America and the Caribbean (WHO, 2007). In Zambia the maternal mortality ratio stands at 449 per 100 000 live births and neonatal mortality is estimated at 34 per 1000 live births (ZDHS, 2007). Attendances at ANC clinics and receipt of professional delivery care have been associated with reduction in maternal deaths (Magadi et al. 2001; UNICEF, 2003). The full benefits of interventions provided during ANC are unattainable because of late entry to ANC. In developed and developing countries, ANC attendance boosts the good outcome of pregnancy. A study in Kenya was able to show the causal relationship between ANC and good perinatal outcomes (Brown et al. 2008).

2.2 Socio-demographic characteristics

There are a number of studies done to establish factors relating to late antenatal attendance in the world. The related factors include place of residence, ethnicity, age, education, employment status, parity, intention to get pregnant, use of contraceptive method, economic status, health insurance and travel time (McDonald, 1988; Perloff, 1999; Trinh, 2005; Magadi, 2000; LaVeist, 1995).

Younger women, especially teenagers, are more likely to have unplanned pregnancies and lack information and resources to access ANC services (Trinh, 2006). As regards marital status, single women with unplanned pregnancies, like most pregnant teenagers, may have a negative attitude towards their pregnancy and, due to this, may be less aware of the signs of pregnancy and as a result seek care much later than would older women (Kogan, et al. 1998).

2.3 Educational attainment

Compared to women of low literacy level, educated women bear fewer children and achieve better child survival, because they avoid early marriages, teenage pregnancy, and high parity because they attend antenatal and postnatal more frequently. A study done in Kwale district, Kenya revealed that women with secondary education or above were more likely to attend for ANC (Brown et al. 2008). The same study also highlighted the relationship between ANC and good perinatal outcomes. Women should be educated on sex, pregnancy and contraceptive use early in life as this would help them make informed decision later on in life (Ehlers, 2000).

2.4 Socio-economic conditions

Income at household level has a bearing on antenatal attendance. This was established in Studies from Jamaica that found that, an increased probability of early antenatal care attendance was associated with increased household expenditure (Gertler et al. 1993).

2.5 Intention to get pregnant

The use of antenatal care services can also be delayed by woman's attitude towards her pregnancy. Teenagers with unplanned pregnancies may have a negative attitude towards their pregnancy and, for this reason they may seek ANC much later than would older married women (Kogan et al. 1998).

2.6 Negative attitude of health providers

In a study done by Dennis et al. 1995, some women stated that the reasons affecting their delay in or lack of antenatal clinic attendance were the long waiting hours, inconvenient

service hours and that they were not treated well by the service providers. The judgmental nature of some health workers towards pregnant adolescents may negatively influence pregnant teenagers' efforts to attend antenatal services (Nichols, 1997).

2.7 Knowledge

Inadequate knowledge about ANC and the benefits derived from it for the mothers and newborns has negatively influence utilization. Sometimes pregnant women especially adolescents, may not be aware of the problems that results from not attending ANC (Dennill et al 1999). Lack of knowledge about dangers of not seeking health care in pregnancy and delivery, including inability to make independent decisions were major barriers to seeking health care among pregnant women in Uganda (Matua, 2004).

2.8 Accessibility of antenatal care services

Physical accessibility of health services has been an important determinant of utilization of health services in developing countries. WHO reported that distance from MCH services, and the time and the cost involved in traveling to services are significantly associated not only with ANC use but also with the use of institutional delivery, postnatal and infant care services (WHO, 2006). According to the WHO, a reasonable distance to the health facility should be about five to ten kilometres (Dennill et al. 1999). Smart (1996) states that the environment in which services are provided for young people should be appealing to them, probably by avoiding the 'clinical' atmosphere often associated with hospitals or hospital-based care.

A study done in Kalabo district of Zambia on maternity services indicated that, distance is a significant factor affecting delay to decide to seek care from health facilities. It also influences the delay caused by the travel time from home to the clinic. The geographical features of Kalabo district, the uneven distribution of facilities and the absence of any roads or transport systems were also hindrance factors to maternity service utilization (Stekelenburg et al. 2004).

Chapter 3

3.0 Study Objectives

3.1 General objective

To examine the factors associated with ANC attendance amongst pregnant women in selected rural and urban communities of the Copperbelt Province.

3.2 Specific objectives

i. To find out the proportion of late antenatal attendance amongst pregnant women in selected rural and urban communities of the Copperbelt province

ii. To identify intrapersonal, interpersonal, institutional, community and public policy factors associated with late antenatal attendance amongst pregnant women in selected rural and urban communities

iii. To compare and contrast intrapersonal, interpersonal, institutional, community and public policy factors associated with late antenatal attendance amongst pregnant women in selected rural and urban communities

Chapter 4

4.0 Research Methodology

4.1 Introduction

This chapter discuses research methodology under the following headings; study sites, study population, study design, inclusion and exclusion criteria, sampling, data management, pilot study and study limitation.

4.2 Study sites

This study was conducted in 2 districts, Mpongwe and Ndola which are rural and urban respectively.

Mpongwe is one of the three rural districts found on the Copperbelt province of Zambia. It lies about 99 Km to the southwest of Ndola. The area is found within the central plateau of Zambia lying between 1200 metres and1500 metres above the sea level. It has generally a flat and undulating relief with low-lying hills. The District shares boundaries with Central Province to the south, Kasempa and Lufwanyama Districts to the west and Masaiti District to the north-east.

Mpongwe had an estimated population of 96, 888 and the expected number of pregnancies was 5,232 (CSO 2000 projections). The district had 2 first level hospitals, 11 rural health centers and 2 company clinics.

On the other hand, Ndola is a major urban centre in Zambia, and is the provincial capital of the Copperbelt province. The District is located at an altitude of 1,270 meters above sea level. It is on latitude 13 degrees south and longitude 28.39 degrees east. It is located 320 kilometers north of Lusaka, the capital of Zambia and covers an area of 1,103 square kilometers.

The district health management team had 18 health centers and 2 hospitals. Its estimated population was 487,881 and expected number of pregnancies was 26,346 (CSO, 2000). Antenatal care services in Ndola were provided by both private and government institutions.

4.3 Study design

This was a cross-sectional quantitative study aimed at examining factors that were associated with late antenatal attendance in selected urban and rural districts of the Copperbelt province. The rural district that was picked was Mpongwe and on the other hand Ndola represented the urban community.

4.4 Study variables

Dependent variable

Antenatal attendance

- Early attendance refers to initiating ANC before 20th week of gestation
- Late attendance refers initiating ANC at 20th gestation or more

Independent variables

- Distance to health facility
- Waiting time
- Attitude of health professionals
- Intention to get pregnant
- Contraceptive utilization
- Traveling time
- Cost of service
- Parity
- Lack of privacy
- Knowledge of ANC services
- Local Beliefs

4.5 Study population

The study population consisted of pregnant women attending antenatal care

4.6 Inclusion criteria

a) Pregnant women

b) Residents of the study areas
c) Willing to participate in the study

4.7 Exclusion criteria

a) Non- pregnant women
b) Non residents
c) Not willing to participate

4.8 Sample size determination

A sample size calculation was done using Epi Info™ 3.5.1 (Centers for Disease Control and Prevention, Atlanta, GA, USA).

4.8.1 Sample size determination for Ndola

Estimate number of pregnancies for Ndola (CSO 2000 projections): **26,346**
Prevalence: **70%** of late ANC attendance
Worst acceptable level: **65%**
Sample size at 95% confidence interval: **319**
Adjusted for non-response 10% **= 319/0.9 = 354**
Total sample size for Ndola was: **360**

4.8.2 Sample size determination for Mpongwe

Estimate number of pregnancies for Ndola (CSO 2000 projections): **5,232**
Prevalence: **74%** of late ANC attendance
Worst acceptable level: **69%**
Sample size at 95% confidence interval: **280**
Adjusted for non-response 10% **= 280/0.9 = 312**
Total sample size for Mpongwe was: **312**

4.9 Sampling procedure

Probability sampling methods by means of multistage sampling technique was used to reach at the pregnant women attending ANC

1. 9 from 18 facilities were selected to participate in Ndola while in Mpongwe 8 out of 15 Mpongwe were selected using systematic sampling
2. Pregnant women who participated in the study were then selected by simple random sampling

4.10 Data collection tools

A semi-structured questionnaire was administered on pregnant women.

4.11 Pre-test

The semi-structured questionnaire was pre-tested in non-participating facilities.

4.12 Ethical considerations

The research proposal was submitted to UNZA Biomedical Research ethics committee and clearance to conduct the study was given.

Permission was sought from Mpongwe and Ndola DHMTs to conduct the research from their health facilities.

Informed consent was obtained from all participants before the interview. The information that was collected was kept confidential. No names were used; however, the questionnaires were serial numbered for the purpose of data entry.

4.13 Data Management and analysis

Data from the completed questionnaires was entered in a database using the double entry system in Epi Info™ 3.5.1 (Centers for Disease Control and Prevention, Atlanta, GA, USA), with in-built consistency and range checks. The database was converted to SPSS version 16.0 for recoding, where necessary, and final analyses.

Tabulations of characteristics (factors) were produced to determine overall distributions. Chi-square was used to test for association and logistic regression to identify significant predictors of ANC attendance. A p value less or equal to 0.05 was considered indicative of a significant factor effect.

Chapter 5

5.0 Results

5.1 Sample Descriptions

Table 1 shows the socio-demographic characteristics of pregnant women who participated in the study. A total number of 613 women attending antenatal clinics were included in the study with the distribution between 2 districts almost equal; 50.1% (n=307) to Mpongwe and 49.9% (n=306) to Ndola. The majority of the participants were in the age category of 20- 29 years, representing 46.6% in Mpongwe and 52.0% in Ndola respectively. Most of the women in the two districts were married [86.6% (n=266) to Mpongwe and 83.3% (n=255) to Ndola]. Unemployment level of participants was 95.8% in Mpongwe compared to 75.8% in Ndola. Almost all participants were Christians (99.7% to Mpongwe and 98.4% to Ndola). Primary school was the highest level of education attained by participants in Mpongwe (56.7%) while the majority in Ndola (54.6%) attained Secondary school.

5.2 Obstetric characteristics

Table 2 shows obstetric characteristics of women who participated in the study. Majority of in had 1 or more children before [74.6% (n=229) in Mpongwe compared to 61.4% (n=188) in Ndola]. In Mpongwe the majority of women (56.0%) had 3 or more previous pregnancies while in Ndola the majority (42.2) had 2 previous pregnancies. Most of the respondents had their last child in the age category of 2 to 5 years; the distribution was 52.1% to Mpongwe and 42.2% to Ndola respectively. Information on initiation of ANC revealed that 72% of the participants in Mpongwe booked for ANC late while in Ndola the proportion was 68.6%

Table 1 : Socio-demographic characteristics of participants (n=613)

Characteristics	*Rural n(%)	**Urban n(%)
Area of residence		
Participants	307(50.1)	306(49.9)
Age (Years)		
Mean (SD)	25.2(6.6)	26.9(6.3)
<20	79(25.7)	41(13.4)
20 - 29	140(46.6)	159(52.0)
30 and above	88(28.7)	106(34.6)
Marital status		
Married	266(86.6)	255(83.3)
Single	27(8.8)	44(14.4)
Divorced	9(2.9)	2(0.7)
Windowed	3(1.0)	4(1.3)
Occupation		
Employed	13(4.2)	74(24.2)
Not employed	294(95.8)	232(75.8)
Religion		
Christian	306(99.7)	301(98.4)
Muslim	1(0.3)	5(1.6)
Level of education		
Never been to school	20(6.5)	6(2.0)
Primary	174(56.7)	73(23.9)
Secondary	106(34.5)	167(54.6)
College/University	7(2.3)	57(18.6)

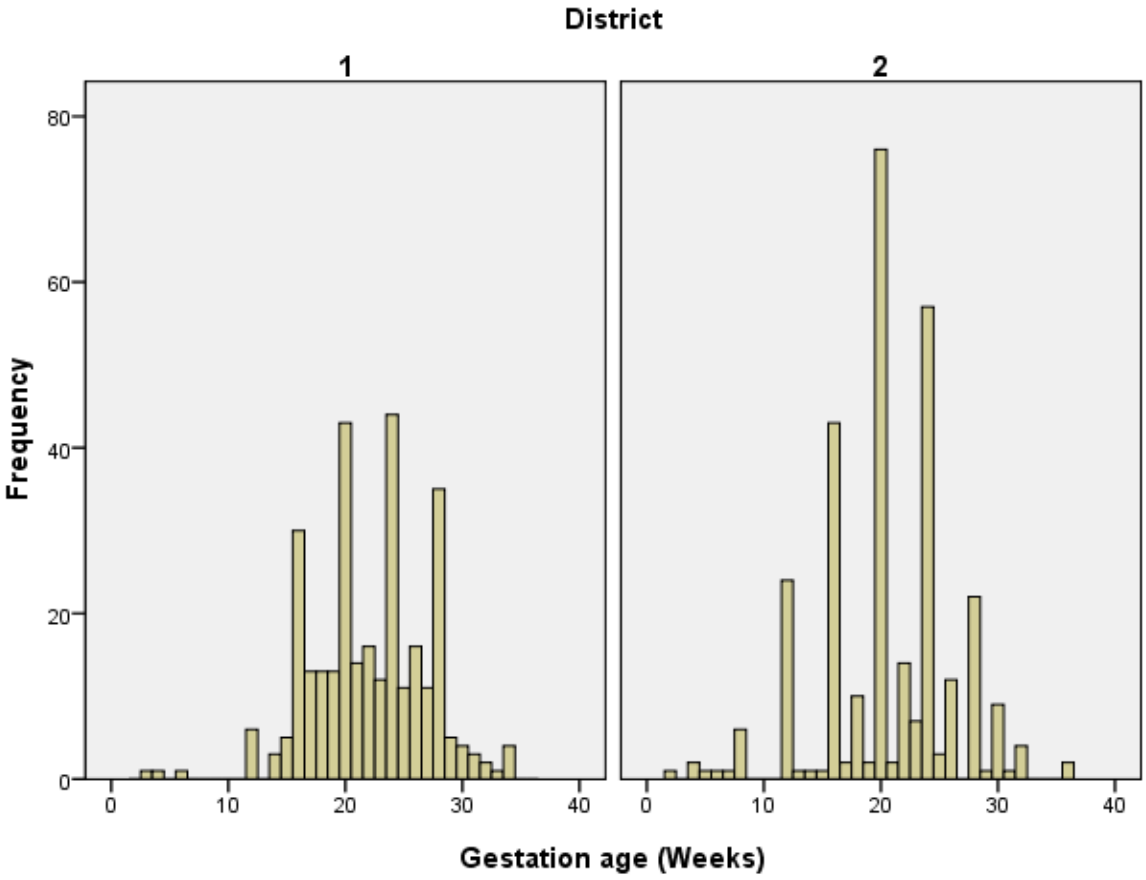
***refers to Mpongwe**
****refers to Ndola**

Table 2 : Obstetric characteristics of participants

Characteristics	***Rural** **n(%)**	****Urban** **n(%)**
Party (number of children**)**		
Nulliparous	78(25.4)	116(37.9)
1 or more children	229(74.6)	188(61.4)
Gravidity (number of previous pregnancies**)**		
1	77(25.1)	65(21.2)
2	57(18.6)	129(42.2)
3 or more	172(56.0)	45(14.7)
Age of last child (years)		
< 2	118(38.4)	65(21.2)
2 to 5	169(52.1)	129(42.2)
> 5	26(8.5)	45(14.7)
Antenatal care entry		
Early	86(28.0)	96(31.4)
Late	221(72.0)	210(68.6)

***refers to Mpongwe**
****refers to Ndola**

Figure 2: Gestation age distribution at ANC Booking (District 1 represents Mpongwe and 2 represents Ndola)



5.3 Comparison of the prevalence of late Antenatal care attendance between Mpongwe and Ndola districts

The prevalence of late ANC attendance, as Table 3 indicates was 72.0 % (n=221) to Mpongwe and 68.6% (n=210) to Ndola. However, the difference between two districts was not statistically significant [OR 0.851 (95% CI=0.6, 1.2), p=0.363].

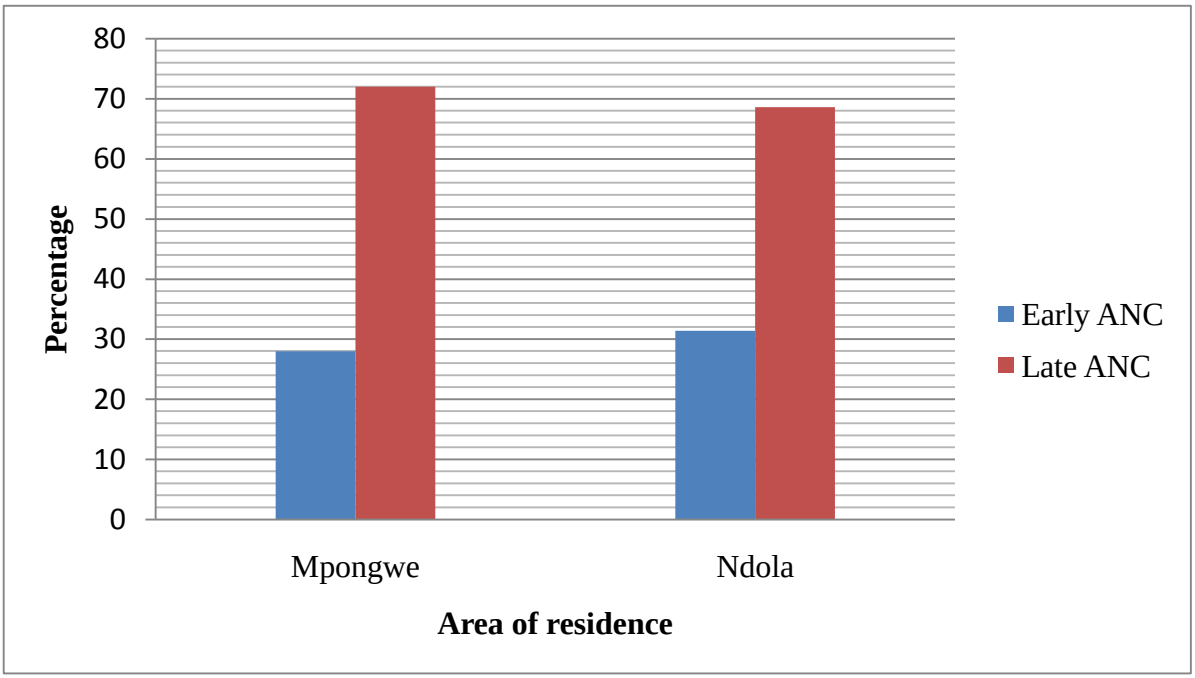
Table 3 : Comparison of the prevalence of Late ANC attendance between Mpongwe and Ndola

Characteristics	ANC Entry		OR	95% CI	p- value
	*Early n(%)	**Late n(%)		n(%)	
Area of residence					
Mpongwe	86(28.0)	221(72.0)	0.851	(0, 1.2)	0.363
Ndola	96(31.4)	210(68.6)	1		

***refers to ANC initiation before 20th Week of pregnancy**

****refers to ANC initiation after 20th week of pregnancy**

Figure 3: Prevalence of Late ANC Attendance in Mpongwe and Ndola



5.4 Intrapersonal/individual factors associated with late ANC attendance

In Ndola district, level of education was found to be associated with late antenatal care attendance (p-value= 0.009). Most of the women (50.9%) with college or university education initiated ANC early compared to those in lower levels of education. In contrast to these findings, there was no association between late ANC attendance and level of education in Mpongwe district. Among pregnant women who had 1 or more children before, there was a significant association in both districts (p- value= 0.001and 0.008 to Mpongwe and Ndola respectively). Similarly, the number of previous pregnancies was associated with late ANC attendance. In both districts, the higher the number of previous pregnancies a woman had, the more likely that she would initiate ANC late (p-value 0.009 for Mpongwe and 0.001 for Ndola. Other factors that were associated with late ANC attendance in Ndola were; age of last child (p-value =0.015), inadequate knowledge about ANC (p-value 0.04), unintended pregnancy (p-value = 0.01) and perception of no benefits in starting early (p-value = 0.007). Regarding Mpongwe district, the other factor that was found to be significant was unintended pregnancy (p-value = 0.002).

Table 4 :Intrapersonal factors associated with Late ANC attendance

	*Rural			**Urban		
Factors	**Early n(%)**	**Late n(%)**	**P-value**	**Early** n(%)	**Late n(%)**	**P-value**
Age (years)			0.274			0.768
< 20	25(31.6)	54(68.4)		11(26.8)	30(73.9)	
20 to 29	42(30.0)	98(70.0)		50(31.4)	109(68.6)	
30 and above	19(21.6)	69(78.4)		35(33.0)	71(67.0)	
Occupation			0.137			
Employed	6(46.2)	7(53.8)		28(37.8)	46(62.2)	0.169
Unemployed	80(27.2)	214(72.8)		68(29.3)	164(70.7)	
Level of Education			0.245			**0.009**
Never been to school	3(15.0)	17(85.0)		3(50.0)	3(50.0)	
Primary	45(25.9)	129(74.1)		17(23.3)	56(76.7)	
Secondary	35(33.0)	71(67.0)		47(28.1)	120(71.9)	
College/University	3(42.9)	4(57.1)		29(50.9)	28(49.1)	
Party (no.of children)			**0.001**			**0.008**
Nulliporous	33(42.3)	45(57.7)		47(40.5)	69(59.5)	
1 or more children	53(23.1)	176(76.9)		49(26.1)	139(73.9)	
Gravidity (no.of previous pregnancies)			**0.009**			**0.001**
1	32(41.6)	45(58.4)		46(41.4)	65(58.6)	
2	15(26.3)	42(73.3)		9(14.3)	54(85.7)	
3 or more	39(22.7)	133(77.3)		41(31.5)	89(68.5)	
Age of last child (years)			0.183			**0.015**
< 2	40(33.9)	78(66.1)		29(44.6)	36(55.4)	
2 to 5	39(24.4)	121(75.6)		37(28.7)	92(71.3)	
> 5	6(23.4)	20(76.9)		9(20.0)	36(80.0)	
Inadequate knowledge about ANC			0.695			**0.04**
Yes	2(22.2)	7(77.8)		9(18.8)	39(81.2)	
No	84(28.2)	214(71.8)		87(33.7)	171(66.3)	
Pregnancy was unintended			**0.002**			**0.01**
Yes	5(9.8)	46(90.2)		6(14.3)	36(85.7)	
No	81(31.6)	175(68.4)		90(34.1)	174(65.9)	
There are no benefits in starting ANC early			0.074			**0.007**
Yes	0(0.0)	8(100.0)		4(11.4)	31(88.6)	
No	86(28.8)	213(71.2)		92(33.9)	179(66.1)	

***refers to Mpongwe**
****refers to Ndola**

5.5 Interpersonal factors associated with late ANC attendance

There were no interpersonal factors that were significantly associated with motivating pregnant women to book for ANC early apart from health providers being unlikely to do so in Mpongwe district [(73%) p-value=0.025] as table 5 indicates.

5.6 Institutional factors associated with late ANC attendance

In Mpongwe, majority of respondents [(74.7%) p-value =0.046] initiated ANC late due to long distance to service delivery points, while in Ndola most of the respondents [(75.0) p-value =<0.001] initiated ANC late because of long waiting time.

5.7 Community factors associated with late ANC attendance

In Mpongwe district community norm was a factor that was significantly associated with late ANC attendance [(82.7%) p- value =0.007)], whereas for Ndola cultural belief was a major factor of influence [(82.9%) p- value =0.008] as table 7 indicates.

Table 5 : Interpersonal factors associated with Late ANC attendance at Interpersonal Level

	*Rural			**Urban		
Factors	**Early n(%)**	**Late n(%)**	**p-value**	**Early** n(%)	**Late n(%)**	**p-value**
Marital status			0.687			0.832
Married	76(28.6)	190(71.4)		81(31.8)	175(68.2)	
Single	6(22.2)	21(77.8)		14(31.8)	30(68.2)	
Divorced	3(33.3)	6(66.7)		0(0.0)	2(100.0)	
Windowed	0(0.0)	3(100.0)		1(25.0)	3(75.0)	
Who motivated you to attend ANC clinics						
Husband			0.284			0.88
Yes	1(16.7)	5(83.3)		43(30.9)	96(69.1)	
No	8(28.2)	216(71.8)		53(31.7)	114(68.3)	
Friends			0.532			0.513
Yes	1(16.7)	5(83.3)		12(36.4)	21(63.6)	
No	8(28.2)	216(71.8)		84(30.8)	189(69.2)	
Media (Radio, TV, Newspaper etc)						
Yes	0(0.0)	1(100.0)		1(100.0)	0(0.0)	
No	86(28.1)	220(71.9)		95(31.1)	210(68.9)	
Health Provider			**0.025**			0.644
Yes	8(53.3)	7(46.7)		8(27.6)	21(72.4)	
No	78(26.7)	214(73.3)		88(31.8)	189(68.2)	

***refers to Mpongwe**
****refers to Ndola**

Table 6 : Institutional factors associated with late ANC attendance

	*Rural			**Urban		
Factors	**Early n(%)**	**Late n(%)**	**p-value**	**Early** n(%)	**Late n(%)**	**p-value**
Institutional hindrances			**0.046**			**< 0.001**
Distance	67(25.3)	198(74.7)		10(43.5)	13(56.6)	
Long waiting time	6(42.9)	8(57.1)		57(25.0)	17(75.0)	
Attitude of Health Workers	5(38.5)	8(61.5)		22(59.5)	15(40.5)	
Privacy	8(53.3)	7(46.7)		7(38.9)	11(61.1)	

***refers to Mpongwe**
****refers to Ndola**

Table 7 :Community factors associated with late ANC attendance

	*Rural			**Urban		
Factors	**Early n(%)**	**Late n(%)**	**p-value**	**Early** n(%)	**Late n(%)**	**p-value**
Community hindrances			**0.007**			**0.008**
Misconceptions	18(31.6)	39(68.4)		31(37.3)	52(62.7)	
Community norm	19(17.3)	91(82.7)		52(35.4)	95(64.6)	
Cultural beliefs	49(35.0)	91(65.0)		13(17.1)	63(82.9)	

***refers to Mpongwe**
****refers to Ndola**

5.8 Public Policy factors associated with late ANC attendance

As shown in table 7 there were no public policy variable that were significantly associated with late ANC attendance in Ndola. However, traveling time [(91.9%) p-value =<0.001] and inadequate health facilities [(80.6%) p-value =0.021] were factors that significantly associated with ANC attendance.

Table 8: Public Policy factors associated with late ANC attendance

	*Rural			**Urban		
Factors	**Early n(%)**	**late n(%)**	**p-value**	**Early n(%)**	**late n(%)**	**p-value**
High cost			0.67			0.445
Yes	9(31.0)	20(69.0)		4(21.1)	15(78.9)	
No	77(27.7)	201(72.3)		92(32.1)	195(67.9)	
Traveling time			**<0.001**			0.891
Yes	14(8.1)	159(91.9)		6(30.0)	14(70.0)	
No	72(5.7)	62(46.3)		90(31.3)	196(68.5)	
Inadequate Health facilities			**0.021**			0.4
Yes	19(19.4)	79(80.6)		23(27.7)	60(72.3)	
no	67(32.1)	142(67.9)		73(32.7)	150(76.3)	

***refers to Mpongwe**
****refers to Ndola**

5.9 Logistic regression analysis

Results show that in Mpongwe nulliparous women were59% (AOR 0.411, 95% CI 0.238, 0.758) less likely to initiate ANC late compared to multiparous women while the proportion in Ndola was 48% (AOR 0.518, 95% CI 0.316, 0.848). Women with 3 or more previous pregnancies in Mpongwe were 2.4 times (AOR 2.425, 95% CI 1.362, 4.318) more likely to start ANC late compared to women falling pregnant for the first time (primegravida); in the same way, women who had 2 previous pregnancies in Ndola were 4 times (AOR 4.264, 95% CI 1.907, 9.453) more likely to start ANC late. In Ndola, the likelihood of women with last child in the age group 2-5 years to start ANC late was 2 times (AOR 2.003, 95% CI 1.079, 3.724) higher than women with last child less than 2 years; also the likelihood of women with last child more than 5 years old was 3 times (AOR 3.222, 95% CI 1.338, 7.761) higher. In Ndola likelihood of women who had inadequate knowledge about ANC to start ANC late was 2.2 times (AOR 2.205, 95% CI 1.021, and 4.759) higher than women with adequate knowledge. Women who fell pregnant unintentionally had a higher odds of staring ANC late in both Mpongwe[4.2 times (AOR 4.258, 95% CI 1.631, 11.119)] and Ndola [3.1 times (AOR 3.103, 95% CI 1.261, 7.641)] respectively. The perception of no benefits derived from commencement of ANC early was associated with 4 times (AOR 3.983, 95% CI 1.365, 11.627) likelihood of late attendance in Ndola.

Compared to lack of privacy at health institutions, pregnant women in Mpongwe were 3.4 times (AOR 3.377, 95% CI 1.180, and 9.660) more likely to initiate ANC late because of long distance to health facilities. Compared to misconceptions on ANC, pregnant women in Mpongwe were 2.2 times (AOR 2.211 95% CI 1.049, 4.660) more likely to start ANC late because of community norm(less value attached to ANC); while in Ndola late ANC attendance was 2.9 times (AOR 2.899, 95% CI 1.372, 6.083) higher due to cultural beliefs than misconceptions. Women who spent longer time traveling to ANC were 13.2 times(AOR 13.189 95% CI 6.931, 25.096) more likely to start ANC late than those who spent less time in Mpongwe, while 96% (AOR 1.962, 95% CI 1.100, 3.500) of pregnant women were more likely to start ANC late because of inadequate Health facilities.

Table 9: Predictors of Late ANC attendance in Mpongwe and Ndola-logistic regression

Predictors	Rural			Urban		
	AOR	**95% CI**	**p-value**	**AOR**	**95% CI**	**p-value**
Parity						
Nulliparous	0.411	(0.238, 0.758)	**0.001**	0.518	(0.316, 0.848)	**0.009**
1 or more children	1			1		
Gravidity						
1	1			1		
2	1.991	(0.947, 4.188)	0.69	4.246	(1.907, 9.453)	**<0.001**
3 or more	2.425	(1.362, 4.318)	**0.003**	1.536	(0.905, 2.606)	0.111
Age of last child (years)						
<2	1			1		
2 to 5	1.591	(0.941, 2.689)	0.83	2.003	(1.077, 3.724)	**0.028**
>5	1.709	(0.636, 4.595)	0.288	3.222	(1.338, 7.761)	**0.009**
Inadequate Knowledge about ANC						
Yes	1.374	(0.280, 6.748)	0.696	2.205	(1.021, 4.759)	**0.044**
No	1			1		
Unintended Pregnancy						
Yes	4.258	(1.631, 11.119)	**0.003**	3.103	(1.261, 7.641)	**0.014**
No	1			1		
No perceived benefits of starting early						
Yes	-	-	-	3.983	(1.365, 11.627)	**0.011**
No	1			1		

Table: Predictor of Late ANC attendance in Mpongwe and Ndola logistic regression

Predictors	*Rural			**Urban		
	AOR	95% CI	p-value	AOR	95% CI	p-value
Institutional hindrances						
Distance	3.377	(1.180, 9.666)	**0.023**	0.827	(0.236, 2.905)	0.767
Long waiting time	1.524	(0.352, 6.601)	0.573	1.909	(0.707, 5.158)	0.202
Attitude of Health workers	1.829	(0.404, 8.270)	0.433	0.434	(0.137, 1.324)	0.156
Privacy	1			1		
Community hindrances						
Misconceptions	1			1		
Community norm	2.211	(1.049, 4.660)	**0.037**	1.089	(0.623, 1.904)	0.765
Cultural beliefs	0.857	(0.444, 1.655)	0.646	2.889	(1.372, 6.083)	**0.005**
Traveling time						
Yes	13.189	(6.931, 25.096)	<0.001	1.071	(0.399, 2.879)	0.891
No	1			1		
Inadequate Health facilities						
Yes	1.962	(1.100, 3.500)	0.023	1.27	(0.728, 2.214)	0.4
No	1			1		

***refers to Mpongwe**
****refers to Ndola**

Chapter 6

6.0 Discussion

6.1 Prevalence of Late ANC Attendance in Selected Rural and Urban Communities of the Copperbelt Province

Information that was gathered from this study shows that the prevalence of late antenatal care attendance is high in both rural and urban communities. The prevalence of late ANC attendance was 72.0 % in rural and 68.6% in urban districts respectively. This result is slightly lower than what was reported in the Nigerian study where the prevalence of late ANC attendance was 81% (Adekanle, 2008) and higher than the 41% established in the Australian study (Trinh et al., 2004). In this study it was found that the difference of late ANC attendance between two districts was not statistically significant. This result is different from what was reported in a study done in Vietnam where it was reported that early ANC utilization was lower in the rural than the urban communities (Tran et al., 2007). There was no significance difference in the proportion of late ANC attendance between rural and urban areas probably because rural areas are more active in the provision of outreach (mobile) maternity services than urban districts.

6.2 Factors Associated With Late ANC Attendance

The results from this study suggest that human behavior, in this case late initiation of antenatal care, is affected by a multilayered set of systems; including family, peer group, and neighborhood, as well as effects of health care, social services systems, cultural belief and value system of the society in which individuals live (Pilot et al., 2008).

6.2.1 Intrapersonal factors associated with late ANC attendance

In this study maternal age was not associated with late antenatal care attendance. This is in line with a study done in Sudan where it was observed that there was no effect of maternal age on ANC utilization (Ali et al., 2010). This study established that there was a tendency of initiating ANC late amongst women of high parity and gravidity in both rural and urban communities. This could be as result of limited resources in the family and negative perceptions resulting from previous pregnancy experiences. It is also possible

that multiparous women feel more confident after previous experience and feel that starting ANC early is not necessary.

Regarding knowledge about ANC, the study revealed that women with adequate knowledge were likely to initiate ANC early compared to those without. This finding is similar to what Tariku and others found out in their study where women who were well informed about ANC were more likely to book for ANC within the recommended time (Tariku, 2010). Furthermore, this study was able to prove that pregnant women who had the perception of no benefits are derived from staring early, tend to start ANC late. Therefore, it could be concluded that health education could be important in the improvement of timing of ANC attendance.

The intention to get pregnant was an important factor in this study. In contrast to women who planned their pregnancy, women who fell pregnant unintentionally were more likely to start ANC late. The finding is in line with study done in New South Wales, Australia where it was indicated that younger women with unplanned pregnancy lacked information about ANC resulting in late attendance (Trinh, 2004). It is believed that wanted pregnancies are more cared for by pregnant women and their spouses; this enable women to book for ANC timely.

6.2.2 Institutional and Public Policy Factors Associated with Late ANC Attendance

In the current study, pregnant women in rural areas reported that availability and accessibility of health facilities could be the cause of late antenatal attendance. This claim was not found to be significantly associated with late antenatal attendance in urban communities. The effect of differences in attendance of antenatal care between the urban and rural areas could be due to differences in distribution of health facilities. Usually, these facilities are disproportionately distributed in favor of urban areas in most developing countries making them more available and accessible to urban women (Adamu, 2011). A study conducted in Haiti revealed that longer traveling time and greater distances to health facilities in rural areas constituted the greatest barriers to antenatal care utilization (Alexandre et al., 2005). Similarly this study established long traveling time, long distance to health facilities and inadequate health facilities were significantly affecting the timing of antenatal attendance. This is in agreement with a

study done in Kalabo district of Zambia on maternity services which indicated that distance is a significant factor affecting delay to decide to seek care from health facilities. It also influences the delay caused by the travel time from home to the clinic. The geographical features of Kalabo district, the uneven distribution of facilities and the absence of any roads or transport systems were also hindrance factors to maternity service utilization (Stekelenburg et al. 2004).

Univariate analysis of this study revealed that long waiting time prior to being attended to at ANC facilities was a barrier to initiating ANC in recommended period.

6.2.3 Community Factors Associated with Late ANC Attendance

The study was not able to establish the effect of misconceptions on the ANC attendance. However, it was observed that it was a community norm to attend ANC late in rural communities because of less value attached to it. Additionally, the study revealed that in urban communities cultural (traditional) beliefs played a major role in deterring early antenatal attendance. It is believed that in some cultures mobility of pregnant women is restricted, thus creating a significant barrier to accessing antenatal services. According to Mekonnen et al (2002), women who followed a traditional belief system are less likely to use maternity services service than religious groups. Cultural beliefs and practices often lead to self-care and consultation with tradition healers. In most communities women seek advice on important health matters from older women first before turning to health professionals.

6.3 Limitations of the Study

Considering that the study was conducted from health facilities, there is a possibility that factors related to attitude of health workers could have been under reported.

The use of different research assistants could have created variances, although they were oriented on questioning and recording of responses. The researcher also checked for completeness of the questionnaire after the interview.

6.4 Conclusion

Late antenatal care attendance remains high in both rural and urban districts indicating the need for intensified and more focused utilization of resources aimed at increasing sensitization of importance of early attendance for high risk groups such as women with unplanned pregnancies, inadequate knowledge about ANC, cultural beliefs and multiparous .

6.5 Recommendations

The study has provided information on the various aspects of late antenatal attendance in urban and rural communities. Therefore, the following recommendations if implemented may improve timely accessing of health services and the quality of service provided;

- District Medial Offices should increase accessibility of ANC services by proving scheduled outreach programs in remote areas
- Ministry of health and District Medical Offices need to provide continuous health education on the importance of timely accessing of ANC services through the media and community sensitization meetings
- Campaign against harmful community norms and cultural beliefs that could hinder mothers from accessing health services
- Ministry of Health should improve on the staffing of health care workers at all levels of service delivery
- Government through Ministry of Health should construct more health facilities to improve availability and accessibility especially in rural areas
- Ministry of health and District Medical Offices should strengthen other aspects of reproductive health such as family planning to reduce on the unintended pregnancies.

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APPENDICES

APPENDIX (I)

QUESTIONNAIRE: Serial no.

INTERVIEW FOR PREGNANT WOMEN ATTENDING ANC IN MPONGWE AND NDOLA DISTRICTS

SECTION A

SOCIO-DEMOGRAPHIC DATA

1. Age (Last birthday)……
2. Marital status
    1. Married ☐
    2. Single ☐
    3. Divorced ☐
    4. Widowed ☐
3. Occupation
    1. Employed ☐
    2. Not employed ☐
4. What type of employment (specify)…….
5. Religion
    1. Christian ☐
    2. Muslim ☐
    3. Hindu ☐
    4. Others ……. ☐
6. Level of education
    1. Never been to school ☐
    2. Primary ☐
    3. Secondary ☐
    4. College/university ☐

SECTION B:

OBSTETRIC INFORMATION

7. Parity …… ☐

8. Gravidity ……..
9. Age of the last child ……..

10. How old was your pregnancy when you made your first ANC visit?..... ……
    (Age of pregnancy in weeks)

11. What family planning method did you use before you fell pregnant?

    1. Pills ☐
    2. Injections ☐
    3. IUCD ☐
    4. Implants ☐
    5. Condoms ☐
    6. Breastfeeding ☐
    7. Nothing ☐

12. What were the reasons for stopping using family planning methods?……

SECTION C

Individual level

13. List factors that influenced you to book for antenatal

    ……
    ……
    ……
    .

14. What hindered you to book for ANC early?
    (before 20th week of pregnancy)

    1. Pregnancy was unintended
    2. No knowledge about ANC
    3. Not satisfied with service
    4. No benefits of starting early
    5. Others (specify…….)

15. Would being tested for HIV prevent you from attending ANC

    1. Yes
    2. No

Interpersonal level

16. Who motivated you to book for ANC?

1. Husband/spouse ☐
2. Friend ☐
3. Media ☐
4. Health provider ☐
5. TBA ☐
6. Others (specify) …….. ☐

17. What was/is your husband's attitude towards ANC?

1. Supportive ☐
2. Not supportive ☐
3. Don't know ☐

If supportive, how were you supported?

……

……

18. Do you think it would be a good idea for husbands to be accompanying pregnant women to ANC?

1. Yes ☐
2. No ☐

Give reasons for your answer to question 17 ……

……

Institutional level

19. Which of the following factors do you think could prevent you from attending ANC early?

1. Distance to ANC services
2. Long waiting time
3. Negative attitude of health providers
4. Lack of privacy

Community level

20. What community influence could stop you attending ANC

1. Misconceptions on ANC
2. Value attached to ANC (Community norm)
3. Cultural beliefs

Public policy

21. Could High cost of accessing ANC prevent you from booking early?
    1. Yes
    2. No
22. Could Traveling time hinder you from accessing ANC on time?
    1. Yes
    2. No
23. Could inadequate health facilities prevent you from accessing ANC on time?
    1. Yes
    2. No

Section D

24. What strategies could be put in place to enhance ANC attendance?

    ……..……

    ……..……

    ……..

APPENDIX (II)

INFORMATION SHEET AND CONSENT FORM

TOPIC: A STUDY TO EXAMINE FACTORS ASSOCIATED WITH LATE ANTENATAL CARE ATTENDANCE AMONGST PREGNANT WOMEN IN SELECTED RURAL AND URBAN COMMUNITIES OF THE COPPERBELT PROVINCE

INTRODUCTION

I am a Master of Public Health student at the University of Zambia, school of Medicine. I would like to request for your participation in my research.

PURPOSE OF THE STUDY

The purpose of the study is to examine the factors associated with late ANC attendance amongst pregnant women in Mpongwe and Ndola districts. This will help future policy formulation to regarding provision of antenatal care services. This will ultimately improve the utilization and quality of ANC.

VOLUNTARY PARTICIPATION

Your participation in this study is purely voluntary. You are free to decline to participate in the study or withdraw if you so wish without consequences.

RISKS AND DISCOMFORTS

The study does not involve any obvious risks to you, except I will take a bit of your time as you answer the questionnaire.

BENEFITS

There are no monetary benefits for participating in this study. However, by participating in the study, you will contribute to information that will assist ministry of health and policy makers to consider community opinions as they formulate policies. Therefore the time you will spend in discussing the issue is highly appreciated.

CONFIDENTIALITY

I would like to reassure you that your personal information that you will entrust me with will not be disclosed to any other third party unless legally required to do so and with your consent. Your identity will be kept anonymous by using a number to identify you instead of your name.

INFORMATION AND CLARIFICATION

Please be informed that if you at any time need clarifications over the research study, direct your questions to:

DR ISAAC BANDA
UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE
DEPARTMENT OF COMMUNITY MEDICINE
P.O. BOX 50110
LUSAKA
CELL # 0977348278
Email: matembobanda@yahoo.co.uk

OR

THE CHAIRPERSON
BIOMEDICAL RESEARCH ETHICS COMMITTEE OF UNZA
UNIVERSITY OF ZAMBIA
P.O. BOX 50110
LUSAKA. ZAMBIA
TEL # 01 256067

CONSENT FORM

The purpose of the study has been explained to me and I fully understand what is involved. I have volunteered to participate in the study out of my own free will.

Signed:…….

(May use participant's right thumb print if unable to sign)

Date:…….

Witness:.....

DR ISAAC BANDA

UNIVERSITY OF ZAMBIA

SCHOOL OF MEDICINE

DEPARTMENT OF COMMUNITY MEDICINE

P.O. BOX 50110

LUSAKA

CELL # 0977348278

Email: matembobanda@yahoo.co.uk

OR

THE CHAIRPERSON

BIOMEDICAL RESEARCH ETHICS COMMITTEE OF UNZA

UNIVERSITY OF ZAMBIA

P.O. BOX 50110

LUSAKA. ZAMBIA

TEL # 01 256067

APPENDIX (III)

Permission Request

The District Medical officer
Ministry of Health
P. O Box 55
Mpongwe.

Ufs: Head of Department
Community Medicine
UNZA

Dear Sir,

RE: PERMISSION TO CONDUCT A RESEARCH FROM YOUR HEALTH FACILITIES

I am a Master of Public Health student at the University of Zambia, school of Medicine. As partial fulfillment of the program, I am required to conduct a research study.

In this regard, I am requesting for permission to conduct my study from your health facilities.

The proposed research will look at factors associated with antenatal attendance in selected rural and urban communities of Zambia.

Your favorable response will be greatly appreciated.

Yours faithfully,

Dr Isaac Banda
MPH STUDENT

Appendix (IV)

Project management

Introduction

This chapter depicts graphically in form of a Gantt chart, the order in which various activities will be completed and the duration for each. It also presents a budget for the research study showing the resources required.

Work plan and Budget

Gantt chart for summarizing work plan for the research project (Figure 4).

Description of Activity	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Presentation of proposal												
presentation ethics committee												
Mobilization of resources												
Data Collection												
Data Analysis												
Report Writing												
Submission of research project												